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APRIL 10.

Rev. H. C. McCOOK, D. D., Vice-President, in the chair.

Thirty-two persons present.

Notes on Echinocactus.— Mr. THOMAS MEEHAN announced, at the meeting of the Botanical Section, the discovery of sensitive stamens in *Echinocactus Whipplei.* This peculiarity had been long known in *Opuntia Rafinesqui* and allied species, as well as in *Portulaca*, which, though its natural order was regarded as very distinct in systems of classification, had much in common with *Cactaceæ.* The motion of the stamens when touched in this species of *Echinocactus* was not instantaneous, several seconds sometimes elapsing before the motion responded to the touch. The flowers of this species are unable to expand to any great extent, on account of their short tube, surrounded by long and stiff spines. If the flowers could expand as in *Opuntia*, and the stamens lie flat, as in that genus, Mr. Meehan suggested that the motion might be equal to that observed in *Opuntia.* The motion in *Opuntia* was not always up towards the pistil, but might be horizontal, to the right or to the left—there seemed to be no rule. That seemed to be the case also in the *Echinocactus.* The bending was from the base, as the filament retained a perfectly straight line during the movement.

Mr. Meehan further remarked that in descriptions of cactaceous plants, the relative length of the pistil to petals or stamens was often given. He had observed that in many species, about the period of the ejection of the pollen from the anther-cells, the stamens and style were of about equal length, the stellate stigma being just above the mass of anthers; but the style continued to grow after the maturity of the anthers, and, in *Echinocactus Whipplei*, would finally reach to near half an inch above. He had not been able to get any genera of *Cactaceæ* to fruit under culture except *Opuntia*, unless they were artificially pollinized. By the application of the flower's own pollen to the stigma, they sometimes perfected fruit.

Mr. Meehan also remarked that in botanical descriptions, *Echinocactus Whipplei* and *Echinocactus polyancistrus* were described as having greenish or yellow flowers. His plants had bright purple flowers, and he had no doubt were correctly referred to the species named. They were from southern Utah.

Referring to *Echinocactus uncinatus*, he remarked that specimens collected in New Mexico by George Vasey, and blooming under culture, had the central spine double the length of the others, whereas in the figure in Pfeiffer they are all represented as uniform, and there were no green-edged sepals or bracts at the base of the flower, as in that figure, warranting the var. *Wrightii* Eng.

On the Relations of Heat to the Sexes of Flowers.—At the meeting of the Botanical Section on April 9, Mr. THOMAS MEEHAN referred to his past communications to the Academy, showing that in monœcious plants female flowers would remain at rest under a temperature which was sufficient to excite the male flowers to active development. Hence a few comparatively warm days in winter or early spring would bring the male flowers to maturity, while the female flowers remained to advance only under a higher and more constant temperature. In this manner the explanation was offered why such trees were often barren. The male flowers disappeared before the females opened, and hence the latter were unfertilized. He referred especially to some branches of *Corylus Avellana*, the English hazel-nut, which he exhibited before the Section last spring, in which the male flowers (catkins) were past maturity, the anthers having opened and discharged their pollen, and the catkins crumbling under a light touch, but there were no appearances of action in the female flower-buds. There were no nuts on this tree last season. The present season was one of unusually low temperature. There had not been spasmodic warmth enough to bring forward the particularly excitable maple-tree blossoms. The hazel-nut had not, therefore, had its male blossoms brought prematurely forward. He exhibited specimens from the same tree as last season, showing the catkins in a young condition of development, only half the flowers showing their anthers, while the female flower-buds had their pretty purple stigmas protruding from nearly all of them.

Mr. Meehan remarked that his observations the past few seasons had been so carefully made that he hardly regarded confirmation necessary, but believed the further exhibition of these specimens might at least serve to draw renewed attention to his former communications.

APRIL 17.

Rev. HENRY C. McCOOK, D. D., Vice-President, in the chair.

Twenty-two persons present.

The following was ordered to be printed :—